UN/CEFACT
Simple, Transparent and Effective Processes
for Global Commerce

REQUIREMENTS SPECIFICATION MAPPING (RSM)

Business Domain: Supply Chain

Business Process: e-Supply Chain

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Title: Material Safety Data Sheet (MSDS) Information

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Document Change History Log

Date of Change	Version	Paragraph Changed	Summary of Change	Author

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1.0 Preamble

Through Title 29, Code of Federal Regulations (CFR), the US Government directs that information describing hazardous material (HAZMAT) be widely available to employees who may come in contact with it. The Occupational Safety and Health Administration (OSHA) Hazard Communication (HAZCOM) Standard promulgates the policy and procedures to distribute that information. HAZMAT manufacturers and vendors develop and communicate data describing their products through Material Safety Data Sheets (MSDS). To help manage MSDS data, the Defense Logistics Agency (DLA) developed a centralized data base repository called the Hazardous Material Information Resource System (HMIRS).

The MSDS plays a critical role in purchasing of HAZMAT, in particular for the US Government. Before a purchase can be completed for anything identified as HAZMAT, a MSDS must be in the HMIRS system.

The Business Requirements Specification (BRS) version 1.0 Release R.05A of the MSDS was approved by TBG at the UN/CFACT forum of 17.03.05 and officially accepted as a Draft Business Standard by the UN/CEFACT Plenary of May 22 – 24, 2006, 12th session. Version 1.0 Release R.05A was taken as the basis to develop the requirements specification Mapping (RSM) document for the MSDS with the goal of developing a UN/CEFACT ebXML standard message. During the requirements elaboration process the details of the MSDS were defined in greater detail and are reflected in an updated BRS version 1.1 that is being submitted concurrently with the proposed RSM.

The purpose of this document is to define a globally consistent MSDS for the worldwide supply chains using the UN/CEFACT Modelling Methodology (UMM) approach and Unified Modelling Language to detail the transactions involved.

The structure of this document is based on the structure of the UN/CEFACT Requirements Mapping (RSM) – Documentation Template and Conformity Rules, document reference CEFACT/ICG/006

2.0 References

- US Government HAZMAT Directive Version 3.4, 1997
- UN/CEFACT Modeling Methodology (CEFACT/TMG/N090R10, November 2001
- UN/CEFACT –ebXML Core Components Technical Specifications version 2.01–ISO 15000-5
- UN/CEFACT Business Requirements Specification version 1.5 (CEFACT/ICG/005)

3.0 Objective

The objective of this document is to identify the complete set of class diagrams for the MSDS and the Business Information entities of the MSDS used by the industries in the supply chain.

The American National Standards Institute (ANSI) publishes a general MSDS format containing sixteen sections and approximately 350 data elements. The MSDS contains information about the known or possible health and safety effects of exposure to Hazardous material. They are also the source document of chemical-specific data for compliance with reporting requirements under two US Government acts. The MSDS may contain the following Hazardous Material information:
- personal protections,
- emergency response,
- proper procedures for shipment and storage,
- pollution prevention,
- release, emission,
- waste generation management,
- regulatory reporting requirements.

Currently manufacturers and vendors submit MSDS information via different media and in different formats (i.e. by FAX, email, JPEG, PDF, etc)

The objective of this business process is to efficiently collect, store and distribute MSDS data, and thus protect the safety and health of employees by making those data readily available.

4.0 Definition of Terms

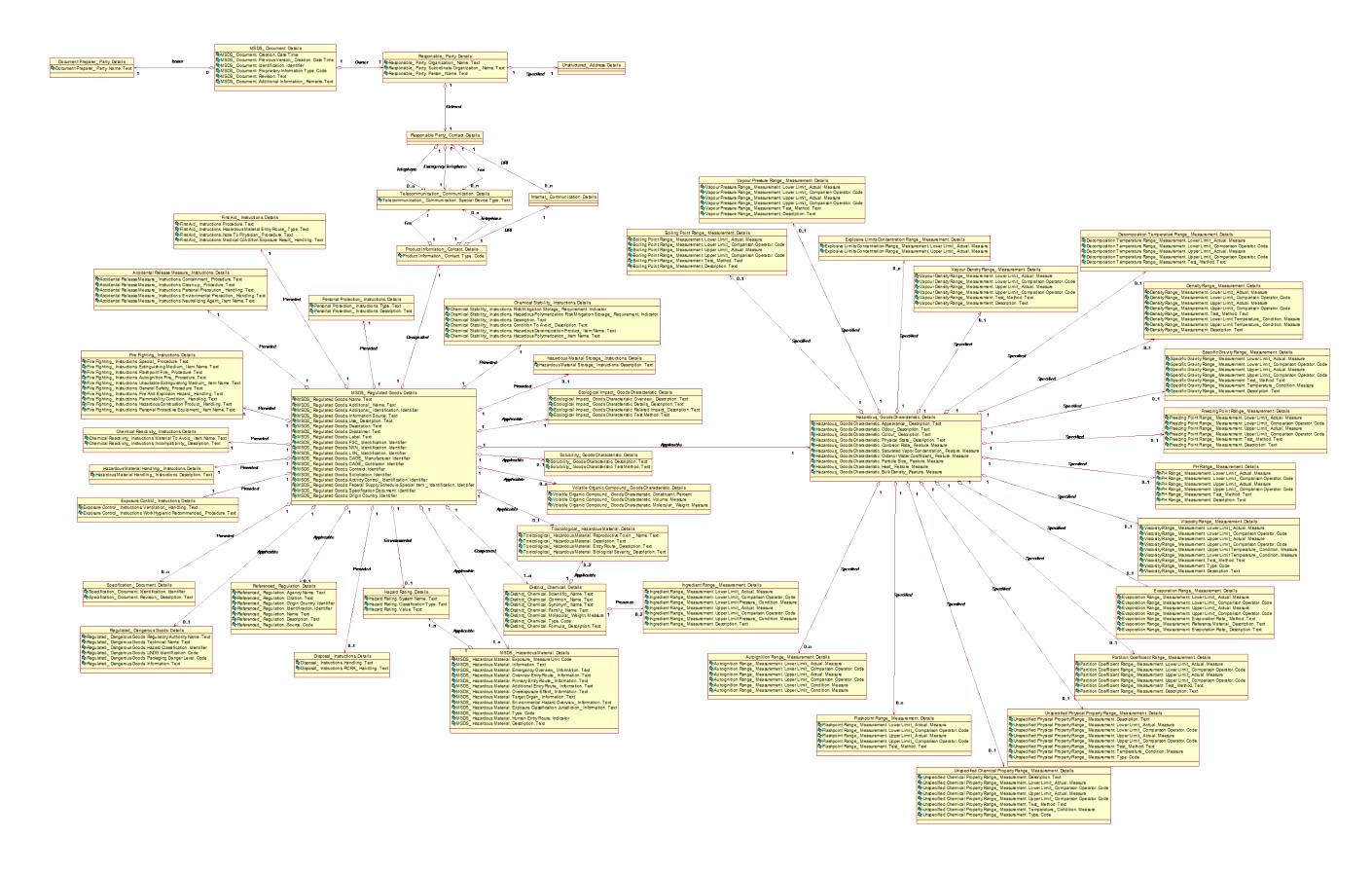| Term	Definition
MSDS	Material Safety Data Sheet
HAZMAT	Hazardous Material
Purchasing Officer	The party who is responsible for the purchase of HAZMAT
HMIRS	A central repository containing MSDS information for HAZMAT

5.0 Target Technology Solution Section

The canonical class diagram of the Material Safety Data Sheet (MSDS) should be used to generate the UN/CEFACT ebXML standard schema of the MSDS. This RSM document together wit the corresponding BRS document and the ebXML schema are intended to be the basis for the MSDS.

6.0 Information Payload to Be Implemented

6.1　Conceptual Data Model

Figure 1 on the following page is the MSDS conceptual data model represented in a class diagram. This represents the known universe of the data requirements for the MSDS.

Figure 1. MSDS Conceptual Data Model

6.2   Canonical Data Model

Table 1 on the following pages present the corresponding canonical data model for the MSDS that fully respects the UMM methodology. The canonical data model for the MSDS contains all the business information requirements found in the conceptual data model class diagram as a result of the transformation of these requirements into existing and candidate Core Components (ABIEs, BBIEs, ASBIEs).

Unique ID	Dictionary Entry Name (DEN)/ Name (for RAM)		ACC/ BCC/ ASCC/ ABIE/ BBIE/ ASMA /RAM	Version	Definition	Occurrence Min	Occurrence Max	Context Categories						
								Business Process	Product	Industry	Region (Geopolitical)	Official Constraints	Role	Supporting Role
			ACC		Aggregate Core Component									
			BCC		Basic Core Component contained within the ACC									
			ASCC		Associated (Aggregate) Core Component, associated with the ACC									
			ASMA		Associated (Aggregate) Business Information Entity, associated with the ABIE									
			MA		Message Assembly									
TBG1	MSDS. Message		MA	1	A message to submit material safety data sheet information.									
TBG1		MSDS_ Document. Details	ASMA	1	An MSDS (Material Safety Data Sheet) document is a collection of data that provides information on the chemicals, hazards, safety precautions, and emergency	1	1	MSDS Reporting	In All Contexts	In All Contexts	US	None	In All Contexts	In All Contexts
TBG1		MSDS_ Regulated Goods. Details	ASMA	1	MSDS (Material Safety Data Sheet) regulated goods are articles of trade or commerce which are subject to or controlled by a MSDS rule, regulation, or law.	0	unbounded	MSDS Reporting	In All Contexts	In All Contexts	US	None	In All Contexts	In All Contexts

Table 1. Canonical Data Model

7.0 Business information entity reference section

This section contains the list of all the Business Information Entities that are both used within the canonical data model and are variations from the standard Core Components, including the UN/CEFACT Registry version that served as the reference point.

7.1 Basic Business Information Entities section

The purpose of this section is to identify any restrictions that have to be applied to a BBIE in the context in which it is being used. The restrictions may be of two types; restrictions that are applied to the value space of the data type, or restrictions/extensions that are applied to an enumeration. Both of these are frequently termed "qualified data types".

BBIE Dictionary Entry Name	Data Type	Usage Rules	Core Component Dictionary Entry Name	Content Component Restrictions			Supplementary component Restrictions	
				Restriction Type	Restriction Value	Expression Type	Supplementary Component Name	Supple-mentary Value
None								

7.2 Aggregate Business Information Entities section

This section identifies any restrictions that have to be applied to standard ABIEs being used.

ABIE Business Term	Aggregate Core Component dictionary Entry Name	Inclusions (BBIEs to be included)	Exclusions (BBIEs to be excluded)	Additional Comments
None				

7.3   Association Business Information Entities section

This section identifies all the ASBIEs where multiplicity restrictions will be applied.

ASBIE name	Multiplicity restriction	Additional comments
None		

7.4   Associated documentation

Document name	File name	Description	BBIE or ABIE Cross reference
None			

8.0   Core components UN/CEFACT Registry Version

The Core components UN/CEFACT Registry version used for this document is version is 1.0 – publication 06A, together with the TBG17 Core component library of March 2006

9.0   Draft Core Component reference

This section provides the message assembly ABIE of the MSDS together with all the identified draft Core Components proposed for registration in the UN/CEFACT Registry. The TBG17 submission was used for this identification and in included as an imbedded file in this document.

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10.0 Additional documentation

Document name	File name	Description	File type
None			

10.0 Additional information:

This document and the updated version of the BRS will be sent to TBG 3, TBG5 and the US representatives from US Customs and the Global Harmonization System.